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| 09/931,374 | 08/17/2001 | Taro Katayama | 50023-145 | 1600 |

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EXAMINER

ADAMS, JONATHAN R

ART UNIT PAPER NUMBER

2134

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

412

Office Action Summary

Application No.

09/931,374

Applicant(s)

KATAYAMA ET AL.

Examiner

Jonathan R Adams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 rejected under 35 U.S.C. 112, first paragraph, as because a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph (Single means claim). See *In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197(Fed. Cir. 1983)

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 rejected under 35 U.S.C. 102(b) as being anticipated by Eric Metois, "Audio Watermarking and Applications" (hereafter referred to as AWA).

3. As to claim(s) 1:

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Embedding in an audio signal a watermark of which a signal level audible to the human sense of hearing when the audio signal is played back / Embedding an audio watermark is an active modification of the audio waveform (Page 1, Paragraph 4, AWA), It is imperative for the watermarking technology not to rely solely on the portions of the audio spectrum that are perceptually less relevant. (Page 1, Paragraph 5, AWA)

4. As to claim(s) 2:

Compressing watermark embedded audio signal according to a specific method after embedding / In order to achieve such high audio quality standards most watermarking system will contain a psychoacoustic analysis stage of some sort. Psychoacoustic models are most popularly referred to in the context of perceptual audio compression (Page 2, Paragraph 2, AWA), Watermarked audio subjected to data rate compression... (Page 2, Paragraph 5, AWA)

5. As to claim(s) 3:

Compressing watermark embedded audio signal according to a specific method before embedding / In order to achieve such high audio quality standards most watermarking system will contain a psychoacoustic analysis stage of some sort. Psychoacoustic models are most popularly referred to in the context of perceptual audio compression (Page 2, Paragraph 2, AWA), It is inherent to the invention taught by AWA that the digital watermark be applied to a digital audio signal of a specific format. The

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formulation of the audio signal into a specific format can equate to a compression means.

6. As to claim(s) 4:

generating a watermark using audio signal alone that is inputted into a watermark signal generator provided in embedding means / Watermarks can simply carry unique identifiers, which may be linked to large amounts of descriptive information through central databases, or the message they carry can be self-contained. (Page 2, Paragraph 8, AWA)

7. As to claim(s) 5:

Removing a watermark from a watermark embedded audio signal using a specific key / A Private Watermark Layer requires an appropriate secret key on the decoder side. The idea is not limited to the scrambling the Watermark Data - the presence of the watermark would still be detectable - but rather to hide the Watermark itself within the protected audio material. (Page 3, Paragraph 9, AWA)

8. As to claim(s) 6, 7:

Claims 6, 7 corresponds to claims 1 and 5

Claim Rejections - 35 USC § 103

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 8-21 rejected under 35 U.S.C. 103(a) as being unpatentable over AWA in view of Bruce Schneier, "Applied Cryptography".

11. As to claim(s) 8:

AWA teaches using audio watermarking techniques to embed identification information into the relevant audio band of digital audio data to provide authenticity (Page 4, "Content Identification", AWA). AWA does not teach to embed a key into and encrypt the audio data. Schneier teaches creation/authentication of identification information through encrypting and embedding identification information into the data and provide a key for all recipients (Page 455, 18.4, Schneier). It would have been obvious to a person of ordinary skill in the art at the time of invention to embed the identification information into the watermark data and provide a key for all recipients as taught by Schneier in the invention of AWA. One of ordinary skill in the art would have been motivated to embed identification information into the watermark data and provide a key for all recipients as taught by Schneier in the invention of AWA because this provides the easiest way to make a key-dependent identification information hash (Page 455, 18.4, Schneier).

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12. As to claim(s) 9:

Claim 9 corresponds to claim 8 and further comprises:

Extracting second key as a watermark using first key / hash value (second key), MAC key (first key), (Page 455, 18.4, Schneier)

Removing/decrypting encrypted area within audio signal / watermark extractor (Page 3, Paragraph 4, AWA), watermarked data area can be considered encrypted

13. As to claim(s) 10, 11:

Claims 10 and 11 corresponds to claim 8 and further comprises:

Band separating audio signal into plurality of frequency band signals having specific frequency band / audio watermarking technology must face the ambitious challenge of opening an inaudible and reliable data channel within the most relevant part of the audio band (Page 1, Paragraph 5, AWA)

Encrypting a frequency band signal other than plurality of frequency band signals in which watermark is embedded / it is imperative for the watermarking technology not to rely solely on portions of the audio spectrum that are perceptually less relevant (Page 1, Paragraph 5, AWA)

14. As to claim(s) 12, 13:

Claim 12 corresponds to claim 8

AWA as modified above teaches using audio watermarking capability to embed identification information into the relevant audio band of digital audio data to provide

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authenticity. AWA as modified above does not teach to store the hash and the key in separate audio band watermarks. AWA further teaches capability to embed identification information into the less perceptually relevant audio bands (Page 1, Paragraph 5, AWA). It would have been obvious to a person of ordinary skill in the art at the time of invention to store the hash and the key in separate audio band watermarks. One of ordinary skill in the art would have been motivated to store the hash and the key in separate audio band watermarks because this would provide greater authenticity protection across an array of frequency bands.

15. As to claim(s) 14-17:

Claims 14-17 corresponds to claim 12 and further comprises:

Audio player extracting watermark / The idea is simply to use the watermarks' persistent data channel as a means to transmit usage rules to compliant components and devices. These compliant components may include players, recorders and any other tool that is designed to manage or manipulate audio content. (Page 4, "Usage Control", AWA)

16. As to claim(s) 18, 20:

Claims 18 and 20 correspond to claim 8

17. As to claim(s) 19, 21:

Claims 19 and 21 correspond to claim 16 and further comprises:

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A switch/counter for turning on or off the inputting of noise signal to said adder / players enforce policies from associative usage rules (Page 4, "Usage Control", AWA)

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R Adams whose telephone number is (571)272-3832. The examiner can normally be reached on Monday – Friday from 10am to 6pm.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse, can be reached on (703) 308-4789. The fax phone number for the organization where this application or proceeding is assigned is (571)272-3838. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



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